



(19)

Generated Document.

(11) Publication number: **63003463 A****PATENT ABSTRACTS OF JAPAN**

(21) Application number: 61147381

(51) Int. Cl.: H01L 29/78 H01L 21/205 H01L 27/12

(22) Application date: **24.06.86**

(30) Priority:

(43) Date of application  
publication: **08.01.88**(84) Designated contracting  
states:

(71) Applicant: AGENCY OF IND SCIENCE &amp;

TECHNOL  
SHIN ETSU CHEM CO LTD  
SEIKO INSTR & ELECTRONICS  
LTD

(72) Inventor: HAYASHI YUTAKA

YAMANAKA MITSUYUKI  
UMEMURA MITSUO  
OKAZAKI SATOSHI  
TAKADA RYOJI  
KAMIYA MASAOKI

(74) Representative:

**(54) MANUFACTURE OF  
THIN FILM TRANSISTOR**

(57) Abstract:

PURPOSE: To perform stable operation characterized by high mobility, by using a silicon film made by thermal CVD of high-order silane

such as trisilane or higher as a channel semiconductor film of a thin film transistor.

CONSTITUTION: On an insulating substrate 1, a gate 2 comprising Ni, W, Mo and the like is formed by evaporation, sputtering and the like. A gate insulating film 3 such as a silicon oxide film and silicon nitride film is laminated by a CVD method and the like on the gate 2. A silicon film 4 of high-order silane such as trisilane or higher is formed by a thermal CVD method on the film 3. A source 5 and a drain 6, which have doublelayer structure of a P-or N-type low resistance semiconductor film and a metal film, are formed. An inverted staggered type thin film transistor is formed. The silicon film 4 is formed as follows: the substrate is heated to a temperature of about 400°C; the high order silane such as the trisilane or higher is introduced in a chamber 7; and the film 4 is formed on the surface of the substrate by thermal decomposition reaction on the substrate.

COPYRIGHT: (C)1988, JPO&Japio



